REMARKS

Summary Of The Office Action & Formalities

Claims 1-13 are all the claims pending in the application. Claims 1-4, 8 and 9 are withdrawn pursuant to Applicant's election. By this Amendment, Applicant is amending claims 5 and 11.

Applicant thanks the Examiner for acknowledging the claim to foreign priority and for confirming that the certified copy of the priority document was received.

Applicant also thanks the Examiner for initialing the references listed on forms SB/08 submitted with the Information Disclosure Statements filed on February 5, 2002 and August 9, 2002.

Applicant affirms the election that was made without traverse on December 2, 2003 to prosecute the invention of Group II, Species III-Figure 8, claims 5-7 and 10-13.

Claim 11 is objected to because of the following informalities: Claim 11 recites "said magnetic generating unit"; however, it should be -said magnetic **field** generating unit". Applicant is amending claim 11 in accordance with the Examiner's suggestion.

Claims 5-7 and 10-13 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Examiner states:

> Claim 5 recites the limitation, "an interior side surface layer of the container received in the reception chamber **is modified** into a material that is not permeable by carbon dioxide gas and oxygen or a material that hard to be permeated by carbon dioxide gas and oxygen". It is unclear what is meant by the term "modified". For example, a surface can be modified by a chemical reaction (such as

> chemical vapor deposition, etching) or a physical reaction (such as sputtering).

Office Action at page 5 (emphasis in original). Applicant respectfully disagrees.

Claim 5 in its present form is sufficiently definite. The fact that a surface of a material can be "modified" in numerous ways does not make the claim indefinite. Rather, the term "modified" reflects the ***breadth*** of the claim. As such, the issue before the Examiner is whether the breadth of the claim is such that it covers the prior art. No issue of indefiniteness is raised. Nevertheless, Applicant is amending claim 5 to recite "said foregoing elements implant ions in the plasma into an interior side surface of the container received in said reception chamber and modifies the interior side surface layer of said container into a material that is not permeable by carbon dioxide gas and oxygen or a material that is hard to be permeated by carbon dioxide gas and oxygen." Support for this amendment is found, for example, at page 26, line 23 to page 27, line 2 of the specification. Accordingly, the Examiner is kindly requested to reconsider and withdraw the Section 112 rejection of claim 5.

The prior art rejections are summarized as follows:

1. Claims 5-7, 10, 12, and 13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Plester (WO 95/22413) in view of Leung (U.S. 5,558,718).

2. Claim 11 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Plester (WO 95/22413) in view of Leung (U.S. 5,558,718) as applied to claims 5-7, 10, 12, and 13 above, and further in view of Hayashi et al. (U.S. 5,578,130).

Applicant respectfully traverses.

Claim Rejections - 35 U.S.C. § 103

1. Claims 5-7, 10, 12, and 13 Over Plester (WO 95/22413) In View Of Leung (U.S. 5,558,718).

In rejecting claims 5-7, 10, 12, and 13 over Plester (WO 95/22413) in view of Leung (U.S. 5,558,718), the grounds of rejection state:

> Referring to Figures 1 and 2, page 8, line 19-page 9, line 12, and page 10, line 2-page 13, line 17, Plester discloses an apparatus for modifying a surface of a container made of a polymeric compound comprising: a reception chamber 1 adapted for receiving the container 2 while keeping airtightness; a vacuum pump for evacuating the reception chamber 1 (pg 11, line 35-page 12, line 2); a plasma generating unit 6 for generating plasma in the reception chamber 1 (pg 10, lines 11-13); an electrode 3 adapted for being inserted into the container 2 received in the reception chamber 1 (pg 10, lines 11-16); and a high voltage power source 6 for applying high voltage to the electrode (pg 10, lines 11-16); wherein an interior side surface layer of the container received in the reception chamber is modified into a material that is not permeable (pg. 9, lines 3-12, pg. 13, lines 4-17, and claims 28-29).
>
> Regarding the claim limitation of a material that is not permeable by **carbon dioxide gas and oxygen** or a material that is hard to be permeated by **carbon dioxide gas and oxygen**, it should be noted that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). Thus, since the interior side surface layer of Plester is an inert or impermeable material, the apparatus of Plester is capable of not being permeated by or hard to be permeated by carbon dioxide gas and oxygen.

Office Action at pages 5-6. Applicant respectfully disagrees.

Applicant's invention involves the ***modification*** of the interior surface of the container, as opposed to ***coating*** the container. For example, Applicant's specification states:

> In this embodiment, ions are implanted thus into the whole area of the interior side surface of the PET container 2. Accordingly, the material itself of the interior side surface of the PET container 2 originally containing carbon are modified into DLC (diamond-like carbon) throughout (see Fig. 4). That is, in this embodiment, the original surface of the PET container 2 is not coated with DLC but the material itself of the surface of the PET container 2 is modified into DLC so that a DLC layer 22 is formed all over the interior side surface as shown on the right of Fig. 4.

Specification at page 13. *See also* Applicant's specification at page 26, line 23 to page 27, line 2. Applicant's claim 5 as amended recites the feature of modifying the interior side surface of the container through ion implantation. Plester, on the other hand, certainly does not teach or suggest this feature.

The grounds of rejection do not assert that the system for forming an inert/impermeable surface disclosed in Plester actually modifies a portion of the insider of the container being treated. Indeed, Plester emphasizes coating the inside surface of the container. *See, e.g.*, Plester at page 5, lines 10-27; page 7, lines 16-24; page 12, lines 29-32.

Clearly, therefore, Plester does not teach or even hint at a device that implants ions into the interior side surface of the container so as to modify the interior side surface, as recited in the amended claim 5 of the invention. To the contrary, the objective of Plester is to deposit a thin polymer coating on the surface (*see, e.g.,* the abstract). Plester explains that the internal surface of the container is changed by surface reaction or surface activation (see page 13, lines 4 to 17). However, Plester makes clear that "free radicals formed thereby are induced at the inner surface of the container before the reactant gases are introduced. After cleaning and surface activation ... provides in situ plasma assisted polymerization." Plester at page 10, line 23 to page 11, line 4. This means, surface activation is induced before the coating. However, there is no description

that the inner surface of the container is modified into a material that is not permeable through surface activation. Rather, referring to page 11, lines 5-14 of Plester, the polymer coating makes the material non-permeable. Moreover, in making the material non-permeable, there is no suggestion in Plester of implanting ions as recited in claim 5.

Regarding the Examiner's position that patentable weight is not given to an ***intended use*** recitation, Applicant notes that the last clause of claim 5 does not merely set forth an intended use, but actually defines the structure in the cooperation of the previously recited elements by way of their application. As such, the last clause limits the structure of the claimed apparatus and should be given patentable weight, especially in light of Applicant's present amendment that further defines the implantation of ions.

Additionally, the grounds of rejection acknowledge that Plester "fails to teach applying high voltage positive ***pulses***." Office Action at page 6 (emphasis added). However, the Examiner relies on Leung to allege that this feature would have been obvious to the skilled artisan:

> Referring to column, 3, lines 43-59, column 5, lines 5-32, and column 6, lines 16-35, Leung discloses that it well known in the art to applying high voltage positive pulses to a plasma source in order to preventing overheating and control plasma density (col. 3, lines 5-52, col. 5, lines 15-16). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to apply high voltage positive pulses to the electrode of Plester as taught by Leung in order to preventing overheating and control plasma density.

Office Action at page 6.

Applicant respectfully submits that Leung does not teach or suggest applying a high voltage pulse to an electrode disposed inside the container. The grounds of rejection assert that

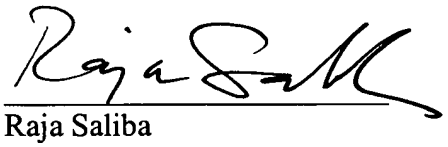
Leung discloses applying high voltage positive pulses to a plasma source is well known in the art. However, it is very difficult to apply the high voltage pulse directly to the plasma source. In fact, Leung discloses the application of a voltage to the target (see column 3, lines 43-48 and column 5, lines 2-8), or the application of a pulse to a vacuum chamber (see Fig. 2 or Fig. 2C, etc). Moreover, since Leung generates the plasma by the RF pulsing circuit, not a high voltage power source according to the present invention, Leung cannot generate the high voltage pulse (*see* page 26, line 19 to page 27, line 2 of the invention). Thus, Leung fails to disclose implanting ions into the interior side surface of the container.

In view of the foregoing distinctions, the Examiner is kindly requested to withdraw the rejection of claim 5 and allow this claim and its dependent claims to issue.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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